

26. The nanocomposite of claim 14, wherein:

the diamagnetic core is a material from the group consisting of gold, silver, copper, and platinum;

the magnetic material is a material from the group consisting of iron and cobalt and platinum alloys containing iron and/or cobalt;

the passivating layer is a material from the group consisting of gold, silver, platinum, and copper, and alloys containing these materials.

27. (amended) The invention of claim 14, wherein the nanocomposite is annealed.

28. (amended) The invention of claim 27, wherein the nanocomposite is annealed at a temperature of about 300 K.--

Please cancel claim 29 without prejudice.

#### REMARKS

The claims have been amended to eliminate multiple dependencies and to reduce claims fees. For convenience in prosecution, all claims are repeated herein, even those which are not amended herein. Two sets of claims are included, one set showing the changes made in this response (attached) and one clean set (set out above). No new matter has been added to the application.

Enclosed are the following:

1. Declaration and Power of Attorney;
2. \$967 Filing Fee (Applicants qualify for small entity status);
3. Copy of Formalities letter; and
4. Petition for Extension of Time.

Applicant respectfully submits that the application is in condition for allowance. A Notice

of Allowance is hereby respectfully requested.

Should the Examiner feel that a telephone conference would advance the prosecution of this application, he is encouraged to contact the undersigned at the telephone number listed below.

Applicant respectfully petitions the Commissioner for any extension of time necessary to render this paper timely.

Please charge any fees due or credit any overpayment to Deposit Account No. 50-0694.

Respectfully submitted,



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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICANTS: Charles J. O'Connor, et al.

DATE: November 5, 2001

SERIAL NO.: 09/829,401

GROUP ART UNIT: 1711

FILED: April 9, 2001

EXAMINER:

FOR: "Sequential Synthesis of Core-Shell Nanoparticles Using Reverse Micelles"

ATTORNEY DOCKET NO.: A99356US (98016.12)

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**Copy of Amendments Showing Changes**

The claims have been amended in the foregoing amendment to read as follows (added matter is underlined and omitted matter is in brackets):

--1. A method of using reverse micelles as nano-reactors for the growth of metal colloids comprising:

growing a magnetic core material; and  
coating the surface with a diamagnetic coating.

2. The method of claim 1, wherein the magnetic core material is from the group consisting of iron and cobalt.

3. A method of using reverse micelles as nano-reactors for the growth of metal colloids comprising:

growing a thin layer of magnetic material on a diamagnetic core; and  
coating the surface with a diamagnetic coating.

4. The method of claim 3, wherein cetyltrimethylammonium bromide, n-butanol, octane and aqueous reactants are used to synthesize a nanocomposite.

5. (amended) The method of claim[s] 3 [or 4], used to form a nanocomposite having a gold core onto which a thin layer of iron is grown, which is then passivated with gold.

6. Stable nanoparticles formed by the method of [any one of] claim[s] 1[-5].

7. Ferrofluids made with nanoparticles of claim 6.

8. Granular GMR materials made with the nanoparticles of claim 6.

9. Inductor materials made with the nanoparticles of claim 6.
10. Storage media made with the nanoparticles of claim 6.
11. Giant magnetoresistance sensors made with the nanoparticles of claim 6.
12. Directed drug delivery agents made with the nanoparticles of claim 6.
13. Agents for targeted sensing for *in vivo* applications made with the nanoparticles of claim 6.
14. A nanocomposite comprising:
  - a diamagnetic core;
  - a thin layer of magnetic material formed on the diamagnetic core;
  - a passivating layer of diamagnetic material formed on the layer of magnetic material.
15. The nanocomposite of claim 14, wherein:
  - the diamagnetic core is a material from the group consisting of gold, silver, copper, and platinum;
  - the magnetic material is a material from the group consisting of iron and cobalt and alloys containing iron and/or cobalt;
  - the passivating layer is a material from the group consisting of gold, silver, platinum, and copper, and alloys containing these materials.
16. (amended) [A] The nanocomposite of claim 14, comprising:
  - a gold core;
  - a thin layer of iron formed on the gold core;
  - a passivating layer of gold on the layer of iron.
17. (amended) The nanocomposite of claim[s] 14, [15, or 16] produced with a reverse micelle synthesis technique.
18. (amended) The nanocomposite of claim[s] 14, [15, or 16,] synthesized using cetyltrimethylammonium bromide, n-butanol, octane and aqueous reactants.
19. (amended) Ferrofluids made with [nanocomposites of any one of claims 14-18] the nanocomposite of claim 14.
20. (amended) Granular GMR materials made with [nanocomposites of any one of claims 14-18] the nanocomposite of claim 14.
21. (amended) Inductor materials made with [nanocomposites of any one of claims 14-18] the nanocomposite of claim 14.

22. (amended) Storage media made with [nanocomposites of any one of claims 14-18] the nanocomposite of claim 14.

23. (amended) Giant magnetoresistance sensors made with [nanocomposites of any one of claims 14-18] the nanocomposite of claim 14.

24. (amended) Directed drug delivery agents made with [nanocomposites of any one of claims 14-18] the nanocomposite of claim 14.

25. (amended) Agents for targeted sensing for *in vivo* applications made with [nanocomposites of any one of claims 14-18] the nanocomposite of claim 14.

26. The nanocomposite of claim 14, wherein:

the diamagnetic core is a material from the group consisting of gold, silver, copper, and platinum;  
the magnetic material is a material from the group consisting of iron and cobalt and platinum alloys containing iron and/or cobalt;

the passivating layer is a material from the group consisting of gold, silver, platinum, and copper, and alloys containing these materials.

27. (amended) The invention of [any prior] claim 14, wherein the nanocomposite[s are] is annealed.

28. (amended) The invention of claim 27, wherein the nanocomposite[s are] is annealed at a temperature of about 300 K.--

Please cancel claim 29 without prejudice.